

Installation

Operation

Service

INDUSTRIAL EVAPORATIVE AIR CONDITIONERS

January 2011

Manufactures and Designers of Technically Advanced Heating and Cooling products

Step 1



- Unload and inspect the cooler
- Check correct Model No. received

Step 2

Page 2



- Read and understand the Employer & Employee Section
- Read Installation Manual

Step 3

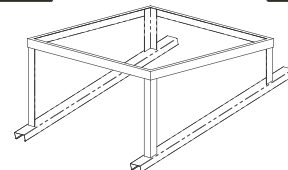
Page 4



- Check cooler location
- Be aware of local regulations
- Discuss changes with customer

Step 4

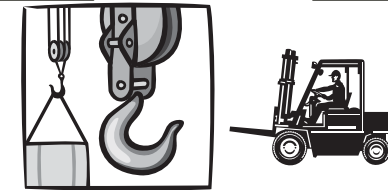
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ROOF TOP INSTALLATION

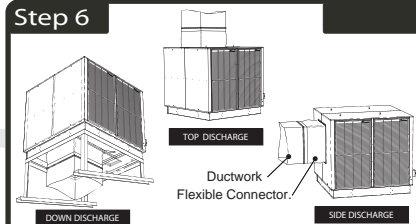
- Construct cooler mounting frame

Step 5



- Position cooler using appropriate lifting equipment and methods
- REMEMBER - SAFETY FIRST**

Step 6



- Use proven methods to connect cooler to ductwork

Step 7

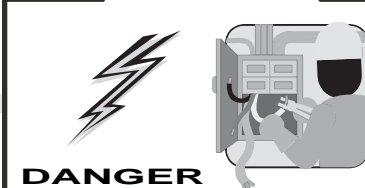
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- Connect water to cooler
- ENSURE JOINS ARE SEALED TO PREVENT LEAKS**

Step 8

Page 12



- Connect mains power to cooler
- REMEMBER - SAFETY FIRST**

Step 9

Page 13



- Fill in the installation checklist
- Commission the cooler
- Remove and recycle packaging

Step 10

Page 14



- Show the customer how to operate their new cooler
- Give the customer the Instruction & Operation Manual
- Ensure customer understands service & maintenance requirements

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EMPLOYER AND EMPLOYEE RESPONSIBILITIES

The installation and maintenance of evaporative air conditioning units, particularly at height, has the potential to create Occupational Health and Safety issues for those involved. Installers are advised to ensure they are familiar with relevant State and Federal legislation, such as Acts, Regulations, approved Codes of Practice and Australian Standards, which offer practical guidance on these health and safety issues. Compliance with these regulations will require appropriate work practices, equipment, training and qualification of workers.

**Seeley International provides the following information as
a guide to contractors and employees to assist in minimising risk.**

Risk Assessment:

A risk assessment of all hazardous tasks is required under legislation. A risk assessment is an essential element that should be conducted before the commencement of work, to identify and eliminate the risk of falls and other risks, or to minimise these risks by implementing control measures. This does not need to be a complicated process - it is a matter of assessing the job to be done and considering what action(s) are necessary so the person doing the job does not injure themselves.

This should be considered in terms of:

- What are the chances of an incident occurring?
- What could the possible consequences be?
- What can be done to reduce, or better still, eliminate the risk?

Contact Technical
Support Centre for an
example of a Risk
Assessment Form

Some points to consider when working on or in a roof:

- Check State regulations regarding working at height.
- What is the best and safest access to the roof and working areas?
- What condition is the roof in? Should the roof structure and surface be checked?
- Does the worker have appropriate footwear?
- Are all power cables/extension leads safe and appropriately rated?
- Are all ladders, tools and equipment suitable and in good condition?
- Where ladders are to be used, is there a firm, stable base for them to stand on? Can they be tied or secured in some way at the top?
- Is there a roof anchor to attach a harness and lanyard to? If so, instruction should be issued for the use of an approved harness or only suitably trained people used
- Are all tools and materials being used, prevented from slipping and falling onto a person at ground level? Is the area below the work area suitably protected to prevent people entering this area?
- Does the work schedule take into account weather conditions, allowing for work to be suspended in high winds, thunder storms/lightning or other types of weather giving wet, slippery surfaces?
- Is there an on-going safety check system of harnesses, ropes, ladders and access/lifting equipment, and where they exist on roofs, anchor points before the commencement of work?
- Is there a system which prevents employees from working on or in roofs if they are unwell or under the influence of drugs or alcohol?
- Are there any special conditions to consider i.e. excessive roof pitch, limited ground area, fragile roof, electrical power lines?
- Use the appropriate lifting equipment.



General Specifications



★ **Cabinet.**

The cabinet is constructed from marine grade aluminium, incorporating channel section corner pillars, mounted on a heavy gauge base frame for structural stability. Many components have been powder coated for extra corrosion protection. Cabinet fasteners are Stainless Steel and Aluminium.



★ **Fan Wheel.**

The Fan wheel is a double inlet, multi-blade, forward curve, centrifugal type. Constructed from galvanised steel, the wheel is statically balanced, The blower shaft is mounted in plumber blocks with, self aligning, single row ball bearings.



★ **Water Reservoir.**

The water reservoir is a one piece Rotational Moulding of Polyethylene, providing a thick walled, corrosion free component with excellent sound deadening properties.



★ **Fan Motors.**

Three Phase Motors are TEFC tropic proof Cast Iron or Aluminium frame induction motor, IP55 enclosures to AS1359. Motor current can vary depending on supplier.



★ **Electrical Control.**

A **Three phase** starter assembly is pre-wired within the unit and incorporates a dual contactor assembly for control of high and low speeds, Current overloads are fitted to both high and low contactors. The enclosure is hose proof to IP55, all models incorporate an external isolation switch.



★ **Water Connection.**

Water supply connection is 1/2" BSP, this connects directly to a 1/2" NB standard approved ball valve.



★ **Filter Pads.**

Filter pads are Chillcel® with a minimum operating saturation efficiency of 80%. All models incorporate a Plastic Frame (UV stabilised) to enhance the appearance of the pad and to prevent water splash.

★ **Special Features.**

Bleed off adjustment is by an external valve located at the corner pillar.

Auto Drain Kit available

Flexible Connectors available.

Air Filters available on request.

★ **Unit Rating.**

Units are factory set to run "*free discharge*" as close as practical to the motor rated current, unless operating conditions are specified. Motor ratings, Pulley and Belt sizes are nominal, and may vary slightly due to manufacturing tolerances. Larger & Smaller motor pulleys and belts are available on request.

Important!



Installation must be in accordance with Municipal building Regulations, Relevant Electrical Wiring Regulations, and any other relevant Codes and Regulations

Introduction.



All Braemar air conditioners are run and electrically tested at the factory.

Subject to normal handling during storage, transit, installation and operation, they will provide years of economical air conditioning with the minimum of service and maintenance.

All Braemar air conditioners are designed for a range of installations and are readily adaptable to the following applications.

- Through wall or window mounting for direct discharge through the appropriate air diffusion equipment
- Wall mounting for plenum chamber diffusion.
- Roof (all models), ground or wall mounting for connection of multiple outlet duct systems.
- Roof (all models), ground or wall mounting for connection to a duct system for central plenum air diffusion.

Location of Air Conditioner.



To ensure only fresh air flows through the filter pads, locate the cooler away from chimneys, exhaust/extractor flues, heater flue pipes and sewer vents.

Check your local building code for the minimum distances in your area.

Allow adequate access to and around the cooler for maintenance. Provision must be made for access to electricity, water supply and drains

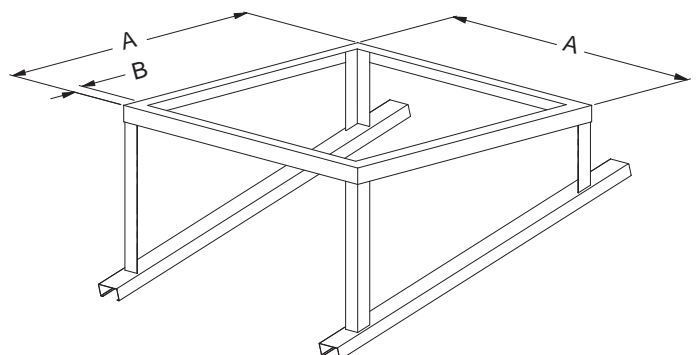
Thoroughly seal all roof penetrations, this will ensure storm water cannot enter the building as a result of the installation

Unit Mounting Guidelines.

Mounting the RPB unit. - A level platform is required for all units and must be strong enough to support the unit under operating and prevailing conditions.

RPB ROOF MOUNTED TYPE DETAILS

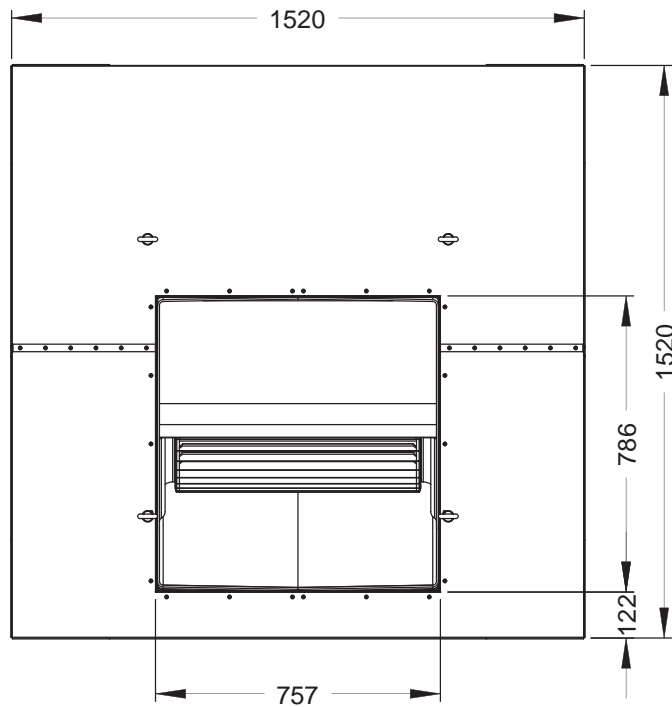
Model	Dimension A	Dimension B
RPB 1200-1800	1940	30 min
RPB 600-1000	1480	30 min



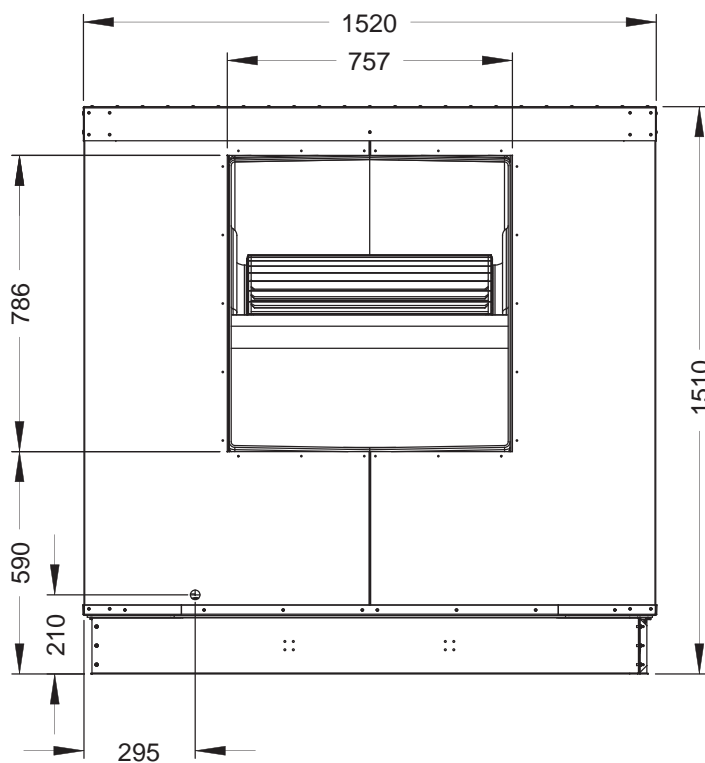
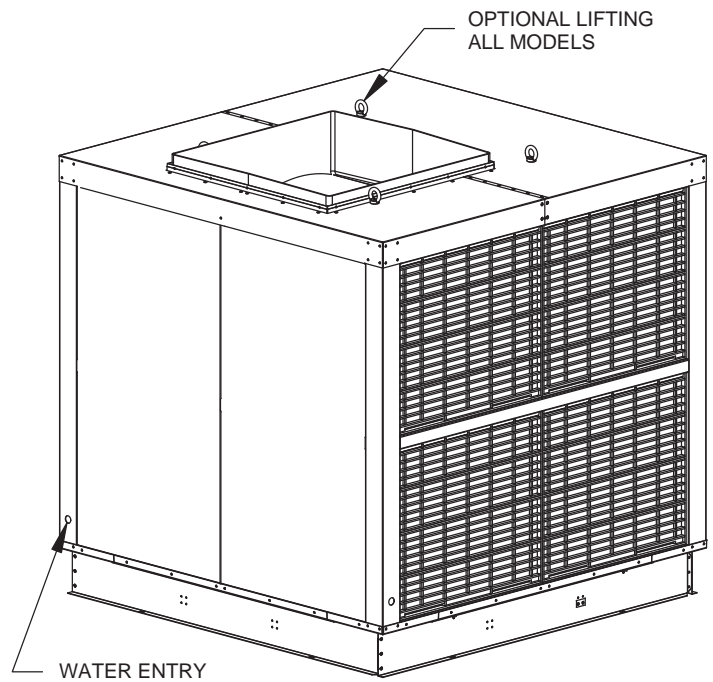
Typical Detail

Product Specification.

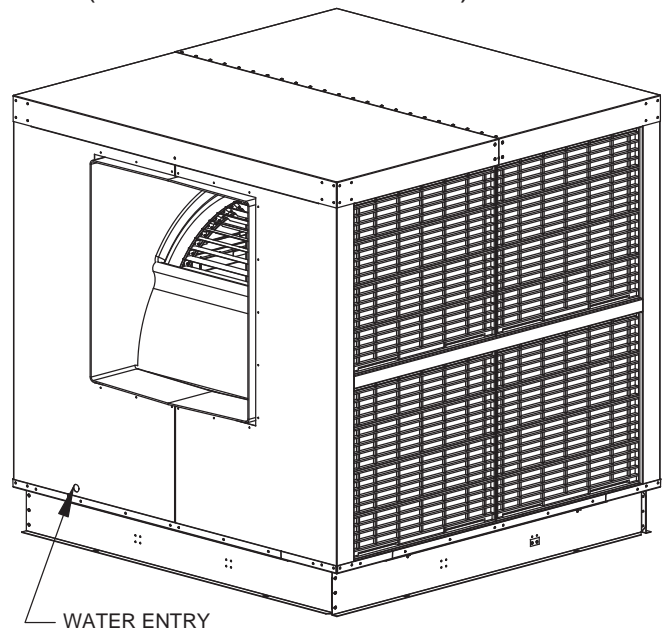
RPB600 - 1000



RPB600-900 Top discharge Shown
RPB1000 Down & Top discharge
have pads on all sides

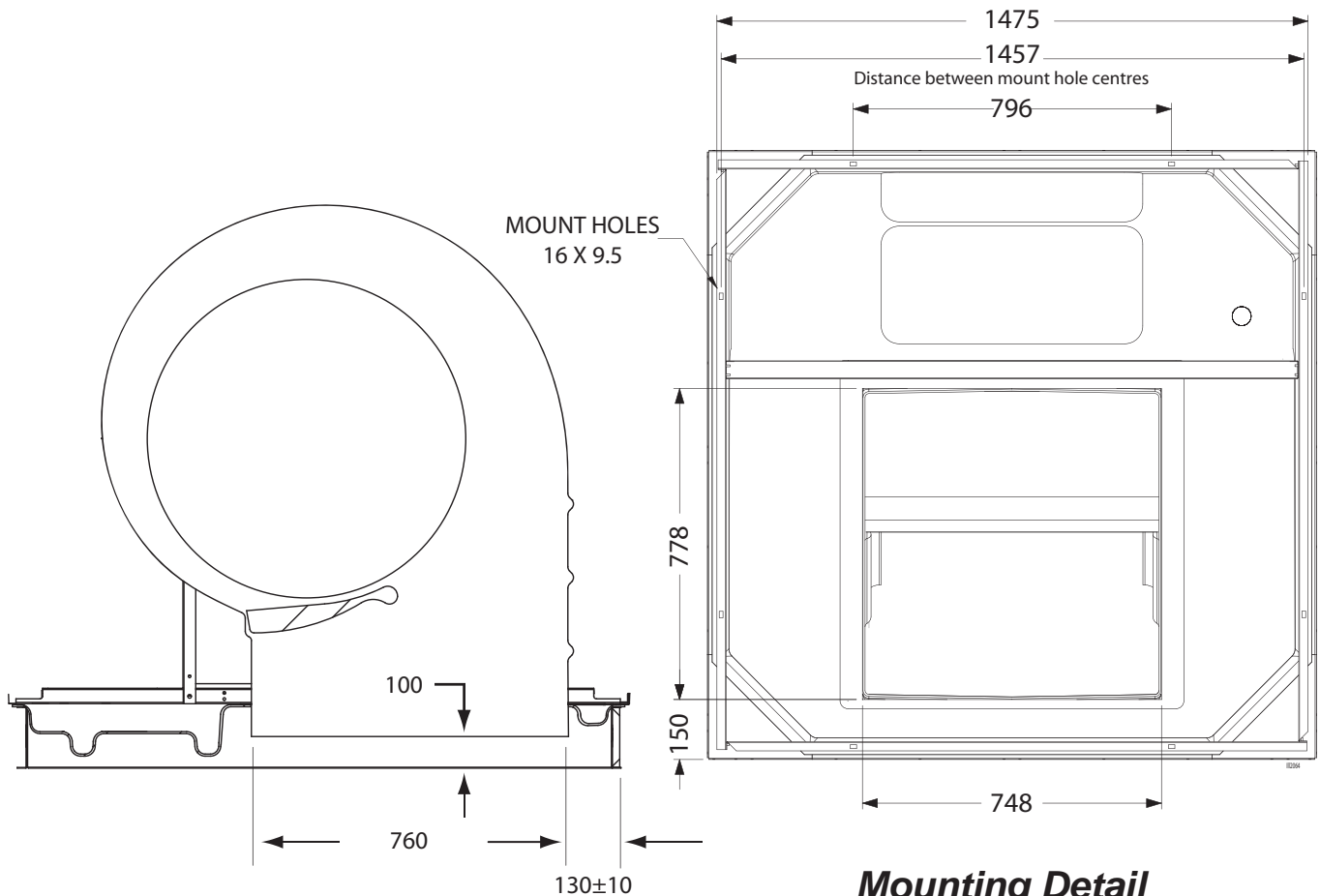
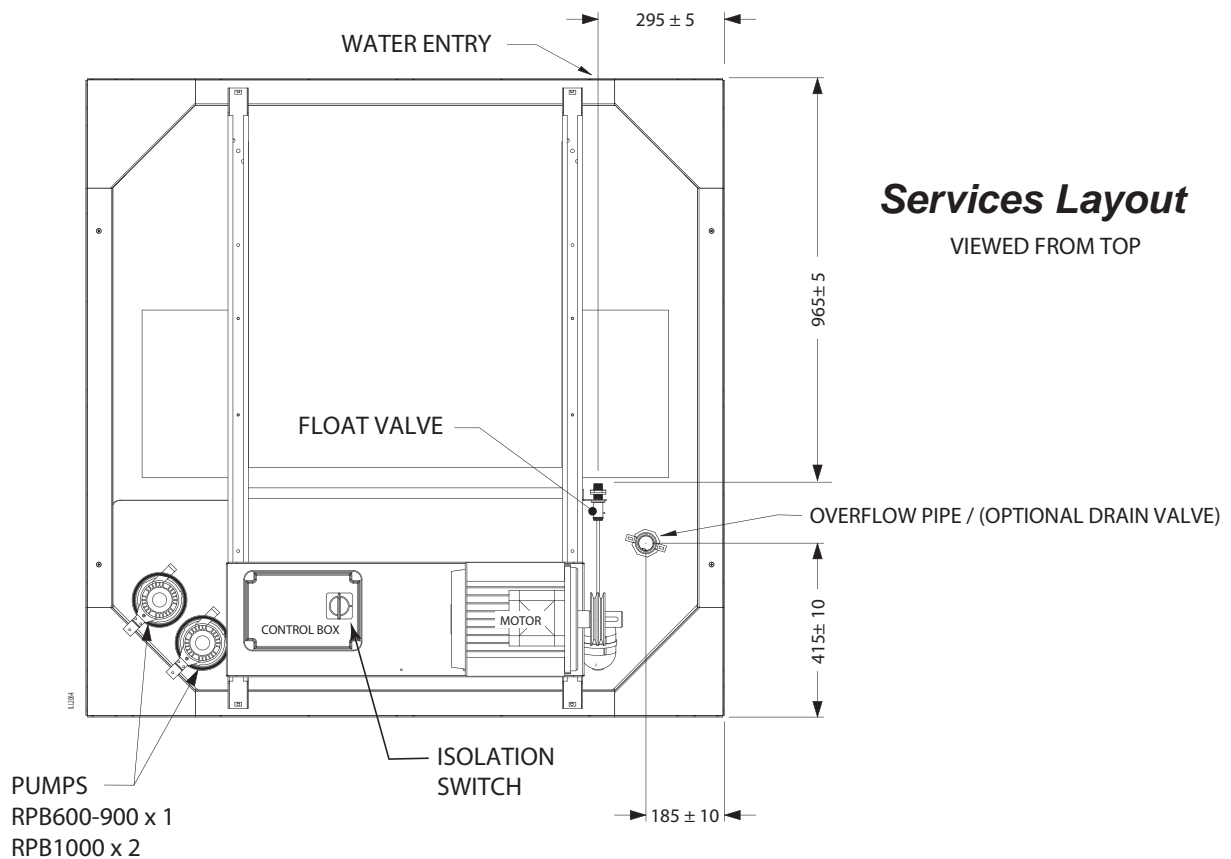


RPB600 - 900 Side discharge Shown
(Not available in RPB1000)



Services & Mounting

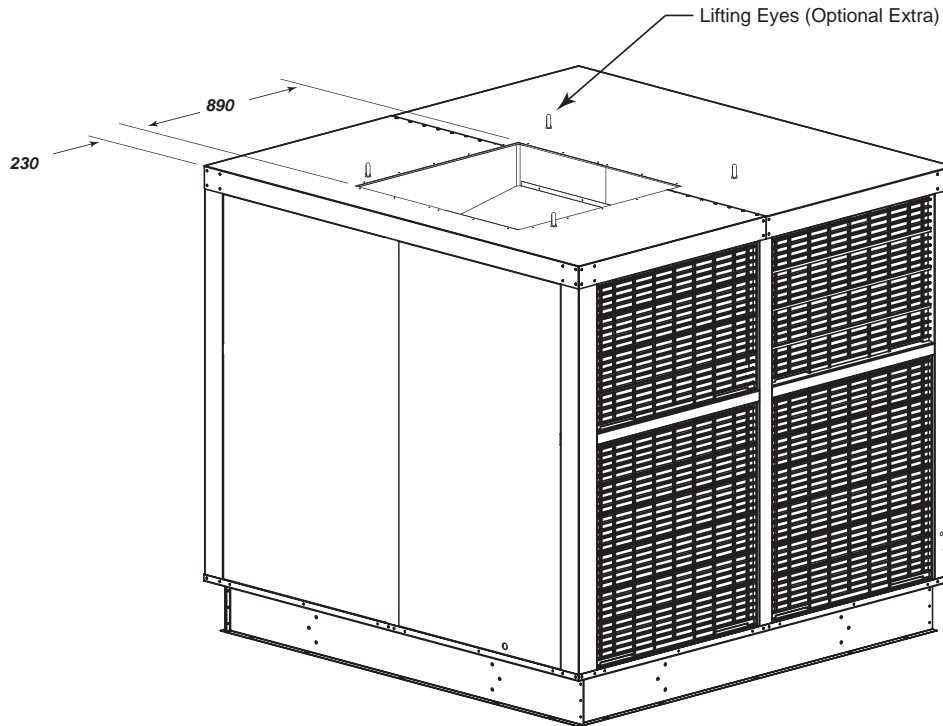
RPB600 - 1000



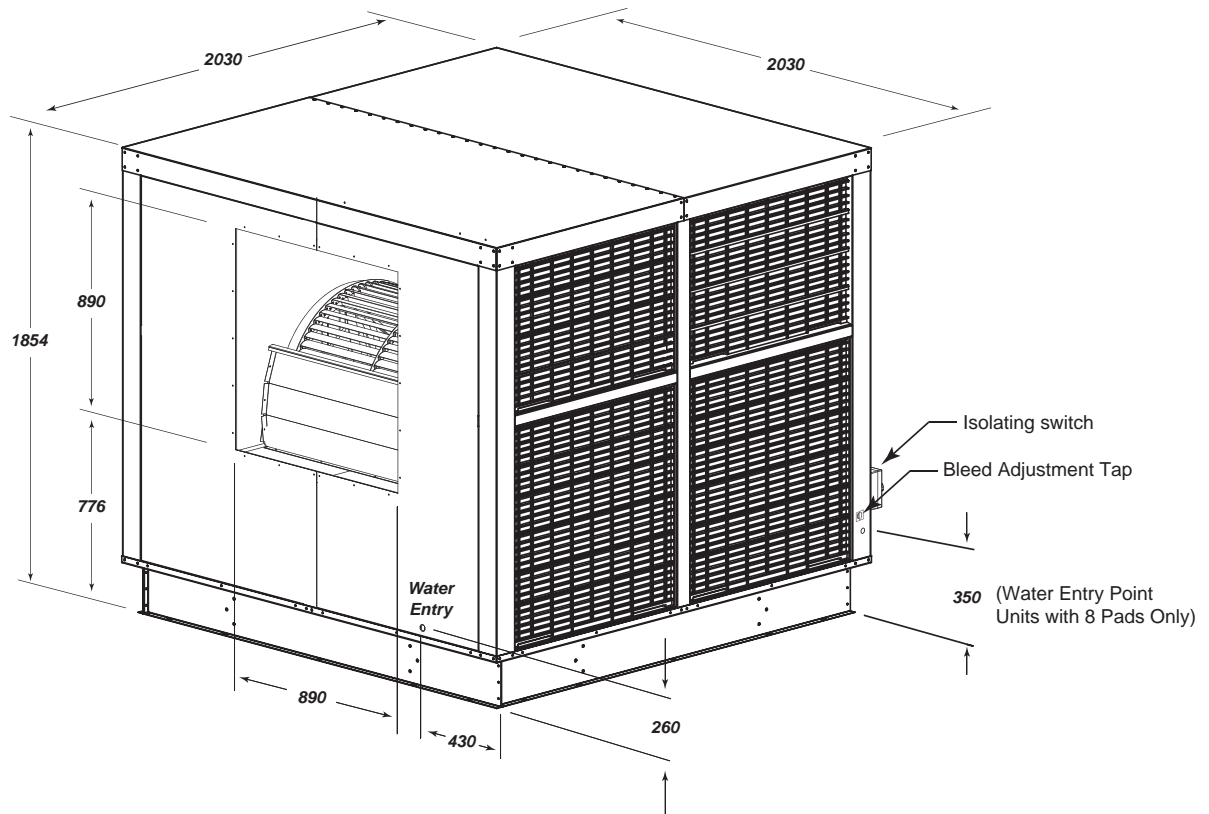
Cabinet Specifications

RPB1200 - 1800

RPB1200-1800 Top discharge shown

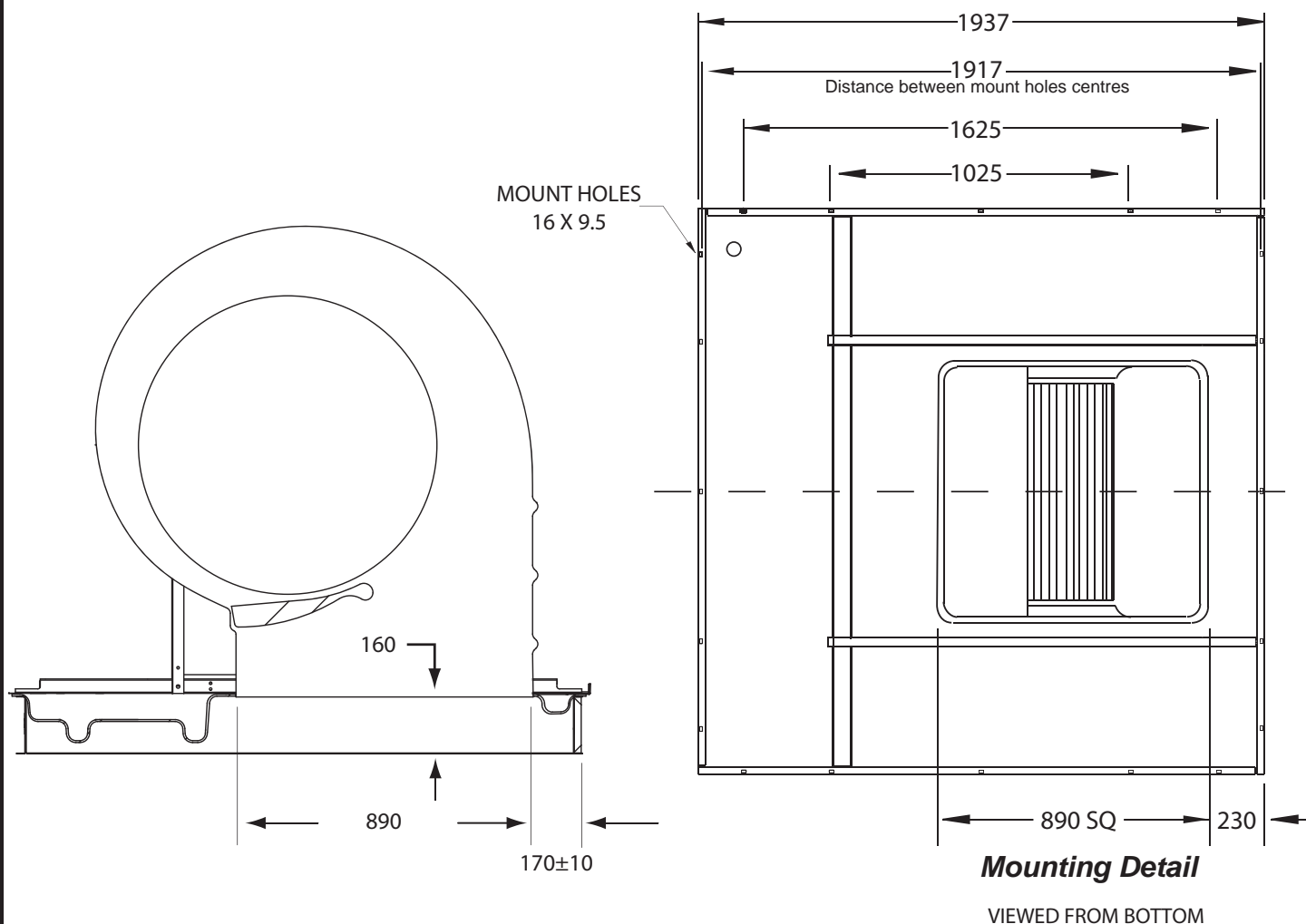
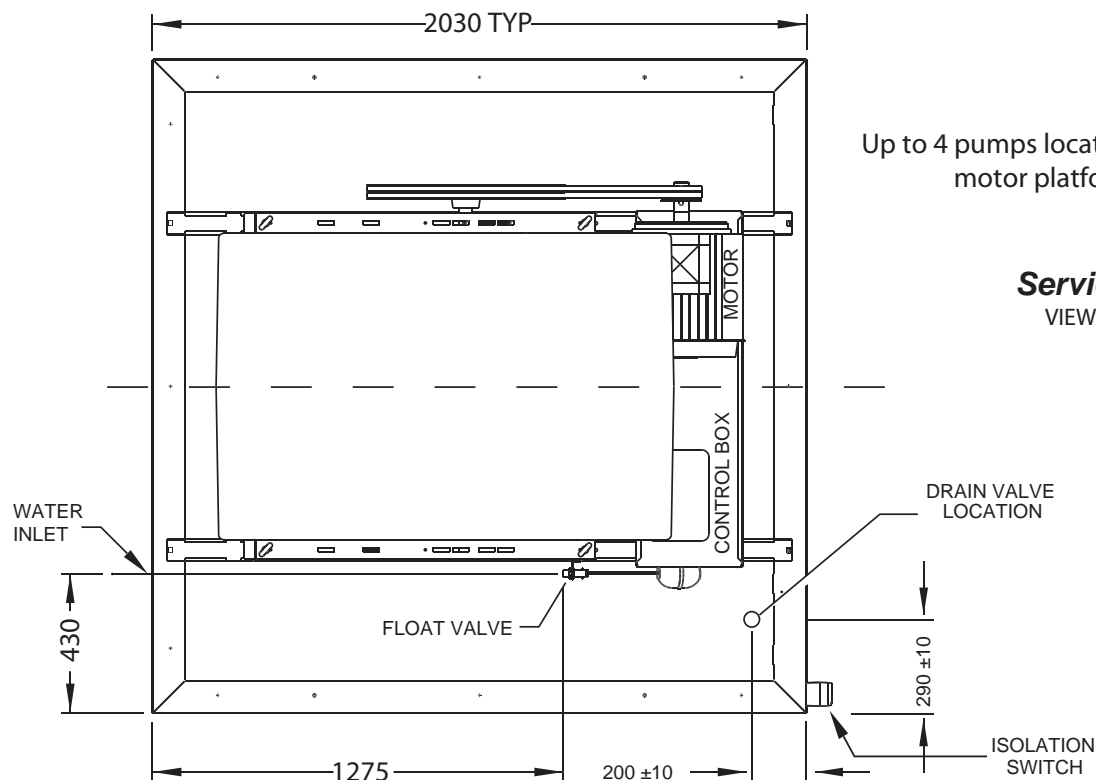


RPB1200-1800 Side discharge shown



Services & Mounting

RPB1200 - 1800



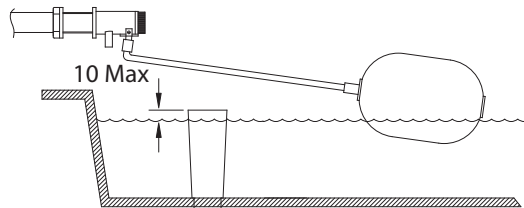
Water Supply and Drain Fittings.



◆ **Mains Water connection** is made to the float valve fitted in the reservoir. The mains water supply to and inside the unit should be made with the appropriate copper pipe and fittings. A stopcock must be fitted outside the unit.

The float valve must be set to maintain the reservoir water level about 10 mm below the overflow level.

An overflow stand pipe is supplied with the unit and must be fitted to the hole provided in the water reservoir. RPB600 - 1800 have a 40 mm drain/overflow supplied as standard.



◆ Drain Valves

When fitting drain valves, other than the Seeley type, the overflow assembly must not be removed. Fit the drain valve in a separate location in a new hole.

When fitting the Seeley Drain Valve, use the existing overflow assembly hole where possible. Some units may require the drilling of a new hole to locate the drain.

NOTE: Flush the mains water supply before connection to the unit to remove any foreign matter which may foul the float valve seat. Ensure that the drain hole in the reservoir and any penetrations through the roof are adequately sealed with an approved sealant.

Bleed Control.

To reduce the accumulation of salts and minerals in the recirculated water it is essential to bleed a certain amount of water to waste. Increased flow of make up water reduces the salt content. The bleed rate will vary with the water supply quality, but should initially be set to the minimum recommended bleed rates as set out in the chart below. The bleed line from the flow and bleed controller in the pump delivery line, inside the unit, must be suspended through the overflow stand pipe, or into the side of the optional drain valve. Connect suitable pipe work to bottom thread of the drain bush so that water drains directly to waste.

Table 1 Recommended Minimum Bleed Rates (LPH)

RPB600	16	RPB1000	26	RPB1400	36
RPB700	18	RPB1200	31	RPB1500	39
RPB900	24	RPB1300	34	RPB1800	42

◆ Location of Bleed Control.

The bleed control tap is located externally on a corner pillar.

Adjustment to the bleed rate is made by turning the black/red tap control to the desired setting.

Check the bleed rate by running into a graduated container for a set time, say 10 minutes.

Build up of salt deposits in the pads or the tank indicates that the bleed rate is inadequate.

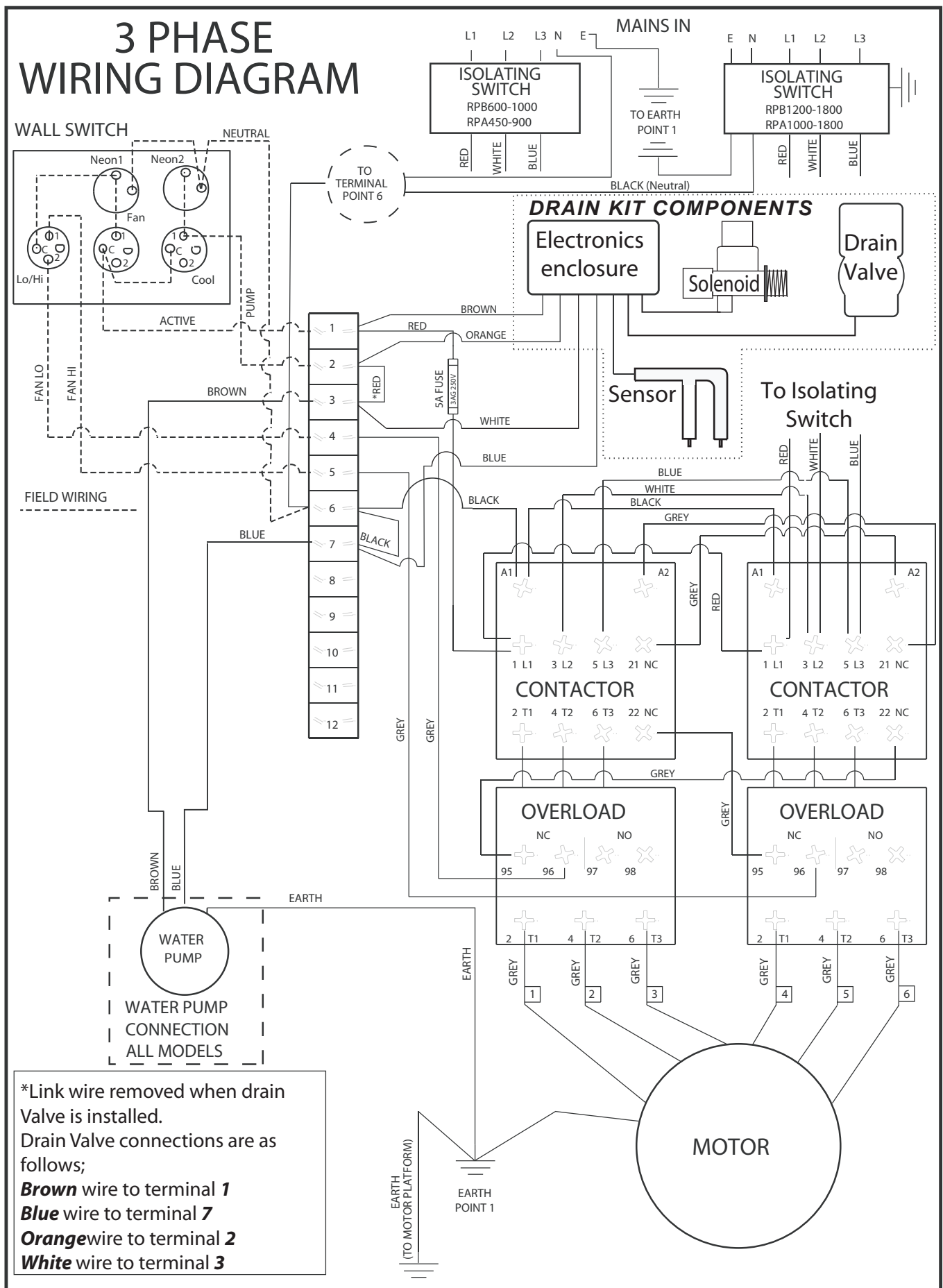
Increase the rate where necessary.

Auto Drain.

The Braemar Salinity Sense Auto Drain Kit **Part No 077444** has been designed as a "one size fits all" to suit current model coolers. The Auto Drain Kit can also be installed in many existing installations. Full installation instructions are provided in kit



Wiring Diagram - Two Speed Three Phase.



Electrical Connection.



◆ Connection to the Electricity Supply

It is a requirement of Seeley International that all coolers be wired with a dedicated circuit to the distribution board adhering to Local and National wiring standards. Ensure that the power supply corresponds to the rating indicated on the serial plate.

RPB600-1000 coolers have either 25mm diameter knockouts or holes in the corner pillars and side panels, use one of these holes for the conduit entry. Wire the unit in accordance with the wiring diagram supplied and the local supply regulations.

RPB1200-1800) have a separate mains isolator located on a corner pillar. Wire the mains power to the isolator.

◆ Mounting the Control Switch - Mount the control switch in the most desirable location.

◆ Two Speed Three Phase Units

Controls for two speed air conditioners are 240 Volt Clipsal switch plate pattern.

No adjustment of minimum or maximum speed is necessary.

Control circuit wiring is via a 240V 5 wire system.

Wire the unit in accordance with the wiring diagram supplied and the local supply regulations.

Belt Tension.

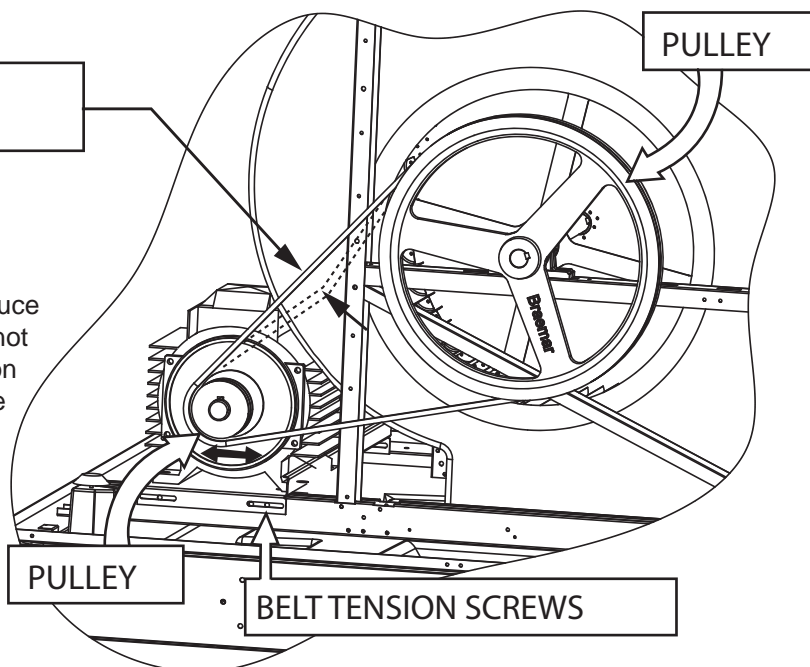
Motor / Pulley arrangement for models RPB600 TO RPB1800

1.6mm/100mm SPAN @ 2.0kg
BELT DEFLECTION FORCE

CAUTION

- If turning pulley counter clockwise to reduce blower speed, be sure that the V section is not opened far enough to allow the belt to ride on the threaded part of pulley, as this will cause damage to the belt.

- Too great a belt tension will increase motor load, and shorten belt and bearing life. Too loose a belt will cause belt slippage and excessive belt and pulley wear.



◆ Check the Full Load Amps

After any adjustments to belt tension, the maximum full load current must be checked to ensure it is within the rating specified on the serial plate. If the amps are not within rating, make adjustments to the motor pulley as described in this section. Only units with a variable pitch pulley can be adjusted, other units need to have the fixed diameter motor pulley changed.

Check that the full load current on high and low speed is within the motor rating.

Effective Cooling Requirements.



To provide efficient cooling or ventilation your air conditioner must be operated with sufficient exhaust openings in the form of doors, windows, or other vents.

One square metre of open area is the minimum requirement for every 3000 m³/hr (830 l/s) of air delivery. (ie. a 6000 m³/hr (1660 l/s) air conditioner requires a minimum of 2 square metres of open exhaust areas).

For optimum cooling performance, windows opposite the prevailing wind conditions should be opened. The cool filtered air entering the building will flow toward the exhaust openings. Doors and windows should be set according to the airflow pattern desired.

Air should never be recirculated back through the air conditioner.

When the design of the building or prevailing winds prevent effective airflow, consideration must be given to the use of some form of exhaust extraction device.

Installation Check List.

TO BE COMPLETED BY
THE COMMISSIONING AGENT



1. Unit level on mounting platform / dropper. ☐
2. Unit correctly flashed to prevent water damage. ☐
3. " V " belt alignment and tension checked. ☐
4. Unit wired in accordance with regulations and operating correctly. ☐
5. Water main flushed before connection to unit. ☐
6. Float valve set correctly. ☐
7. Water flow adequate to all pads. ☐
8. Bleed rate set and bleed hose positioned in overflow. ☐
9. Filter pad frames uniformly packed (woodwool pads only). ☐
10. Water distribution through pads uniform. ☐
11. Control switch tested. ☐
- Pump only running. ☐
- High Speed Fan only. ☐
- High Speed Fan and Pump running. ☐
- Low Speed start-up. ☐
- Low Speed running. ☐
12. Unit tested for maximum amperage. ☐
13. Air flow from duct outlets correctly set. ☐
14. Adequate exhaust openings provided. ☐
15. OWNER INSTRUCTED IN METHODS OF OPERATION. ☐
16. OWNER ADVISED ON MAINTENANCE SERVICING REQUIREMENT. ☐
17. OWNER PRESENTED WITH OPERATING INSTRUCTIONS. ☐

INSTALLATION CHECKED / COMMISSIONED AND APPROVED BY

AgentDATE / /

Operating the Air Conditioner

- Turn on the water at the source and ensure that any shut off valve is open.
- Turn on the electrical supply and the mains isolator at the air conditioner.
- Wait for the tank to fill with water.
- Turn on the pump by switching the **Cool** switch on the wall control to Cool.
- Wait 2 - 5 minutes for the pads to saturate with water.
- Select either **High** or **Low** fan speed.
- Turn on the fan by switching the **Fan** switch to ON.



Warranty.

WARRANTY STATEMENT

A warranty of one year applies to general component parts, supported by a one year structural warranty.

A two (2) year warranty applies to the fan motor.

The company assumes no responsibility for damage resulting from accident, abuse, misuse, or where repairs have been made or attempted by unauthorised personnel.

To the extent permitted by law, all other conditions and warranties, whether expressed or implied, are hereby excluded.

Service Information.

Should you consider that your Braemar air conditioner requires service, you should contact your local Braemar Dealer/Service Agent.



For Service please phone
1300 650 644

quote the unit Model number and Serial number as shown below.

Model No..... Serial No.....



For your future reference:

Air conditioner purchased from.....

Air conditioner purchase date / / Phone No

Air conditioner installed by.....

Air conditioner installation date / / Phone No

Service & Maintenance**REGULAR MAINTENANCE IS ESSENTIAL FOR MAXIMUM EFFICIENCY**

To ensure that your Braemar Evaporative Air conditioner remains in first class working condition for many years, it should be thoroughly serviced four (4) times a year. Service schedules should include a service at the end of the summer season and prior to the commencement of the next summer season.

⇒ Health Regulations. ⇐

Please note that some State Regulations require that Evaporative Air Conditioners used for Commercial purposes must be serviced at Three (3) Monthly Intervals.

Owners of Commercial Air Conditioners should contact the Health Authority in their State for servicing guidelines.

⇒ 11. Lubrication - All models. ⇐

Bearings on electric motors and water pumps are sealed for life and do not require lubrication. The same applies to the fan shaft bearings on the RPB600-RPB1000. RPB1200 - RPB1800 fan shafts are fitted with plumber blocks with grease nipples, lubricate at regular intervals, depending on frequency of use.

⇒ End of Season Maintenance. ⇐

- * Turn off the water supply.
- * Remove filter pad frames.
- * Turn off the power at the isolating switch inside cabinet, or on the corner pillar.
- * Hose both sides of the filter pad frames to remove dust, salts, pollen etc.



Warning! Do not use high water pressure when cleaning Chillcel[®] pads- Damage will occur.

- * Check and clean the water distributor channels.
- * Empty the water reservoir through the outlet provided.
- * Thoroughly clean the reservoir.
- * Do not replace the drain outlet. If fitted with a drain valve, ensure that it is open.
- * Ensure that there is no evidence that water is carrying over onto the motor or pumps. If so, check the pad condition.
- * Check the fan blades are tight.
- * Check Pulleys and Belts for wear.
- * Check alignment and tensioning.
- * Replace or adjust parts if necessary.
- * Leave Isolating switch OFF and refit pad frames.

Service & Maintenance cont.**⇒ Pre-Season Maintenance. ⇐**

- * Remove the filter pad frames. If pads are deteriorating replace as required. (see below)
- * Ensure air conditioner is turned OFF at the Isolating switch
- * Regrease fan shaft bearings
- * Replace drain outlet removed at the end of the season maintenance.
- * Turn on the water supply.
- * Check the float valve assembly for correct operation and setting of water level.
- * Turn air conditioner ON at the Isolating switch.
- * Refit the pad frames.
- * Run air conditioner for a period of time, check pads for an even saturation of water.
- * Check the bleed off rate and set using the table on page 15 as a guide.

⇒ Replacing the Filter Pads. ⇐

If, during your scheduled maintenance you determine that the filter pads need replacing, you will be able to purchase replacements from you local Braemar Dealer/Service Agent.

Replacing the pads is as follows.

- Turn air conditioner off at the isolating switch.
- Using a blade screw driver or similar tool, remove the pad frames by;
 - Inserting the tool into the notch provided at the base of pad frame and approximately 130mm from edge.
 - Lift and lever base of pad frame forward so that locking tab becomes free from hole.
 - Repeat for opposite side of pad frame.
 - Tilt pad frame outwards and down until free from unit.
- Chillcel® Pad - On a suitable work surface area, remove the screws from each of the retaining angles. Shake pad free from frame.
- Using a spray nozzle on a garden hose with a moderate pressure, wash any dirt and salt deposits from the louvre grille and frames.
- Place the new pad into the frame **ensuring that the top of the pad is against the top inside edge of pad frame** and secure as before. Slotted angle must be at base of pad frame.
- Spray the assembly with water to rinse any dust or loose material from the frames, then install into air conditioner.



Warning! Do not use high water pressure when cleaning Chillcel® pads- Damage will occur.

- Switch the COOL control “ ON “, and check that the trough in the upper part of the pad is filling, and allowing the water to drain through the holes in the trough.

**Important!**

New filter pads can take some time to become conditioned and uniformly saturated when water is first applied. A characteristic odour of wet timber may be experienced during this period.

Trouble Shooting.

PROBABLE CAUSE



SUGGESTED REMEDY



Inadequate Cooling

Insufficient air discharge openings.

Make sure adequate openings are provided to exhaust the incoming cool air.

Inadequate exhaust for area being cooled, causing high humidity and discomfort.

Open windows, doors etc.

Undersized air conditioner.

Replace with larger Model.

Ducts blocked or collapsed

Repair Ducts

Clogged or dirty filter pads.

Clean or replace pads.

Dry pads or lack of water while the air conditioner is operating.

Check water distribution system for obstructions. Check pump is operating.

Excessive Ambient Humidity.
(see also top of page)

During summer when the humidity is high, the unit will not work as effectively. Turn the pump off.

Fan running backwards.

Reconnect the incoming mains for correct rotation. (3 phase only)

Fan running too slowly.

Check motor amps. If below rating plate specification, adjust motor pulley to increase fan speed

Belt slipping.

Tighten belt.
Replace if worn.

Fan Fails To Start

Circuit breaker tripped or fuse blown.

Reset or replace.

Overload tripped.

Reset & check motor amps and adjust if necessary.

Power not turned ON

Turn power ON

Loose electrical connections.

Check all connections.

Faulty control switch.

Replace.

Motor burned out.

Replace.

Trouble Shooting.

PROBABLE CAUSE



SUGGESTED REMEDY



Motor Overheats & Trips Overload.

Low supply voltage.

Consult with local Electrical Authority.

Incorrect settings on current overloads.

Reset overloads to correct setting.

Wrong motor size.

Fit correct size motor.

Fan speed too high.

Adjust motor pulley until the motor current is equal or below that specified on motor rating plate

Belt Slipping Wearing Excessively

Belt loose.

Tighten belt.

Pulleys out of line.

Align pulleys.

Worn belts.

Replace belts.

Worn pulleys.

Replace pulleys.

Pump runs but does not circulate water or pads lack water

Insufficient water in tank causing pump to cavitate.

Adjust float level to increase water depth.

Pump strainer clogged or dirty.

Clean strainer.

Blocked water supply tubing.

Clean out water trough.

Continuous overflow of water

Incorrect float valve setting.

Adjust float valve

Inlet valve not sealing

Replace valve

Pump Fails To Operate

Pump motor failure.

Replace complete pump.

Incorrect wiring of pump.

Correct pump wiring.

Loose electrical connections.

Tighten connections.

Pump control switch faulty.

Replace pump control switch.

Trouble Shooting.

PROBABLE CAUSE



SUGGESTED REMEDY



Noisy Air Conditioner.

Fan rubbing on housing.

Reposition fan.

Fan out of balance due to dirt, bent blade etc.

Clean fan, adjust blades if possible: Replace fan.

Air conditioner delivering more air than required.

Adjust any baffles or balance air to reduce airflow.

Belt "squelching".

Adjust alignment of motor and pulleys.

Belt "squealing".

Tighten belt by adjusting motor platform: Replace belt.

Inadequate sized ducts or grilles.

Increase grille size.

Loose water distribution connections.

Tighten all connections.

Formation of white deposits in tank and on pads.

High mineral content in water supply.

Increase the bleed rate.

Air conditioner located near the source of unpleasant odour.

Relocate the air conditioner or remove the odour source.

New Pads fitted

Will go after short time.

Unpleasant odour.

Algae in tank.

Drain tank and clean thoroughly, fill with clean water and install new pads.

Pad remains wet after shutdown.

Allow fan to run for further 10 minutes after pump has been shut off.

Break in water distribution system.

Replace any cracked or broken tubing.

Water being thrown into area being cooled.

Too much water to pads.

Ensure filter pads are correctly installed.

Replace with new filter pads.

Check restrictor tap setting and adjust if required.
Blocked Pads



SERVICE: 1300 650 644

For all your Braemar warranty and service needs.

Or

Contact your local Braemar direct dealer.

TECHNICAL SUPPORT CENTRE: 1300 650 399

For technical support regarding
the installation of this product

SALES: 1300 650 141

For all your sales enquiries



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